a1 cont'd

(d) providing a second mask image segment which corresponds to said second edge;

(e) exposing said second mask image segment with radiation using said imaging tool to produce a second pattern edge gradient, said second pattern edge gradient defining said second edge of said feature in said material, wherein said first and second edges are separated by distance which is less than or equal to the Rayleigh limit of said imaging tool;

(f) developing said radiation-sensitive material, thereby reproducing said two-dimensional feature on said substrate.

2. (Amended) The method as defined in claim 1 wherein said first and second edges are [separated by distance which is less than or equal to the Rayleigh limit of said imaging tool] substantially parallel to each other.

3. (Amended) The method as defined in claim [2] 1 wherein said first and second edges are orthogonal.

a2

5. (Amended) The method as defined in claim [2] 1 wherein said first and second mask image segments comprise a single mask image having an area which is larger than said two-dimensional feature.

6. (Amended) The method as defined in claim [2] 1 wherein said first mask image segment is provided on a first mask and said second mask image segment is provided on a second mask.

a3

12. (Amended) In a process for fabricating semiconductor devices, a method of printing a rectangular feature [onto] into a photoresist layer deposited over a semiconductor substrate, said rectangular feature having at least two closely-spaced opposing feature edges, said method comprising the steps of:

decomposing said rectangular feature into a rectangular mask image having a pair of opposing mask edges of a length which is greater than or equal to the length of said opposing feature edges, said opposing mask edges being

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a3 cont'd

spaced apart a predetermined distance which is greater than the spacing between said opposing feature edges;

exposing a first one of said mask edges with radiation using an imaging tool to produce a first pattern edge gradient which defines a first one of said feature edges in said photoresist layer;

offsetting said rectangular mask image ~~relative~~ to said substrate;

exposing the second one of said mask edges with radiation using an imaging tool to produce a second pattern edge gradient defining the second one of said feature edges in said photoresist layer, wherein said spacing between said opposing feature edges is less than or equal to the Rayleigh limit of said imaging tool.

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a4

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~~14~~. (Amended) The method as defined in claim [13] 12 wherein said predetermined distance is greater than said Rayleigh limit.

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a5

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~~18~~. (Amended) The method as defined in claim [13] 12 wherein said pair of mask edges each have associated therewith an additional sub-resolution edge segment, each of said additional segments being spaced a certain distance away from, and substantially parallel to, said associated mask edge, said additional segments functioning to increase the slope of said first and second pattern edge gradients, thereby enhancing said printing of said rectangular feature.

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a6

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~~21~~. (Amended) [A] In a process for fabricating an integrated circuit (IC) on a silicon substrate using a lithographic tool, an imaging decomposition algorithm for printing an array of square contacts having an edge dimension which is less than or equal to the Rayleigh limit of said lithographic tool comprising the steps of:

(a) calculating a minimum critical dimension (CD) for said printing process based on said edge dimension;

(b) forming a plurality of decomposed image squares, each of [said] which corresponds to one of said contacts within said array, said image squares having a dimension which is greater than or equal to said minimum CD;

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